

II. AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all previous listings:

1. (Currently Amended) A system of apparatuses with a communication bus, the system comprising:

- [[[-]]] at least two apparatuses, each comprising a circuit for transmitting messages;
- [[[-]]] a plurality of bus connections, each connected between a respective pair of apparatuses;
- [[[-]]] the apparatuses comprising circuits for organizing the system into a tree communication structure, in which a first one of the apparatuses is a root node and remaining apparatuses are subordinate nodes, communicating with the root node via the bus connections directly or via other subordinate nodes, the root node and the subordinate being allowed to arbitrate for access to the communication structure, the root node ultimately resolving arbitration;

wherein the apparatuses are arranged to dynamically assign a second one of the apparatus to be root node; and

wherein at least one of the apparatuses is arranged to select the second one of the apparatuses to become root node on the basis of detection that an apparatus other than the root node ~~a third one of the apparatuses, which may be the second one of the apparatuses~~, is expected to need relatively more access to the communication structure than other apparatuses, the second one of the apparatuses being selected closer to the apparatus needing relatively more access to the communication structure ~~third one of the apparatuses~~ than the first one of the apparatuses, in terms of a number of connections needed to communicate from the first and second one of the apparatuses to the apparatus needing relatively more access to the communication structure ~~third one of the apparatuses~~.

2. (Currently Amended) A system according to claim 1, wherein at least one apparatus is a fourth one of the apparatuses being arranged to accumulate counts of an amount of communication traffic originating from respective ones of the apparatuses, the apparatus needing relatively more access to the communication structure ~~third one of the apparatuses~~ being selected on the basis of having a highest of the counts.

3. (Currently Amended) A system according to claim 1, wherein the apparatuses are being arranged to select the apparatus needing relatively more access to the communication structure ~~third one of the apparatuses~~ as the second one of the apparatuses.

4. (Currently Amended) A system according to claim 1, wherein the system operates in fixed duration cycles of messages, a predetermined fraction of the cycle being allocated to isochronous messages, the apparatuses being enabled to send no more isochronous messages per cycle than can be sent in the predetermined fraction of the cycle, the apparatus needing relatively more access to the communication structure ~~third one of the apparatuses~~ being selected on the basis of detection that the apparatus needing relatively more access to the communication structure ~~third one of the apparatuses~~ is expected to send relatively more isochronous messages than other apparatuses.

5. (Currently Amended) A system according to claim 4, wherein at least one apparatus is a fourth one of the apparatuses being arranged to accumulate counts of a number of isochronous messages originating from respective ones of the apparatuses, the apparatus needing relatively more access to the communication structure third one of the apparatuses being selected on the basis of having a highest of the counts.

6. (Currently Amended) An counting apparatus for use in a communication system having that comprises apparatuses and bus connections each connected between a respective pair of apparatuses, the apparatus being adapted to:

communicate for communicating a tree structure with nodes corresponding to the apparatuses, including a root node apparatus[[],];

the counting apparatus being arranged to count an amount of communication traffic originating from respective ones of the apparatuses[[],];

to select an apparatus originating a greater amount of communication traffic a highest count apparatus with a highest count ; and

to initiate a redefinition of the root node apparatus of the tree structure to a new root node apparatus closer to the highest count apparatus originating a greater amount of communication traffic.

7. (Currently Amended) An [[A]] ~~counting~~ apparatus according to claim 6, wherein the ~~counting~~ apparatus comprises: ~~comprising~~

a first table;

and a second table,

the first table having entries for pointers to entries in the second table, the entries of the first table being addressed by channel numbers, the entries in the second table being for count values for respective apparatuses, the ~~counting~~ apparatus being adapted to ~~arranged~~

[[[-]]] to detect assignments of apparatuses as sources for channel numbers;

[[[-]]] to change a first one of the entries for a first one of the channel numbers in the first table, when it is detected that a first one of the apparatuses is assigned to the first one of the channel numbers, storing a pointer to the first one of the apparatuses in the first one of the entries;

[[[-]]] to detect a packet with a transmitted one of the channel numbers sent ~~send~~ via a ~~the~~ communication structure;

[[[-]]] to read a first one of the pointers addressed by the transmitted one of the channel numbers from the first table; and

[[[-]]] ~~and~~ to update a count in an entry in the second table pointed at by the first one of the pointers.

8. (Currently Amended) A method of communicating information in a system of apparatuses with a communication bus, wherein the system comprises bus connections between pairs of apparatuses, the apparatuses each comprising a circuit for transmitting messages, the apparatuses comprising circuits for organizing the system into a tree communication structure, in which a first one of the apparatuses is a root node and remaining apparatuses are subordinate nodes, communicating with the root node via the bus connections directly or via other subordinate nodes, the root node and the subordinate being allowed to arbitrate for access to the communication structure, the root node ultimately resolving arbitration; the method comprising

- [[[-]]] predicting a volume of messages to be sent by each of the apparatuses;
- [[[-]]] selecting an apparatus ~~heavy using one of the apparatuses, which is expected to need~~ relatively more access to the communication structure than other apparatuses; and
- [[[-]]] dynamically selecting a new root apparatus to become root node, the new root apparatus being selected closer to the apparatus expected to need relatively more access to the communication structure ~~heavy using one of the apparatuses~~ than the apparatus previously corresponding to the root node, in terms of a number of connections needed to communicate from the new and previous root node to the apparatus expected to need relatively more access to the communication structure ~~heavy using one of the apparatuses~~.

9. (New) The method of claim 9, wherein the apparatus expected to need relatively more access to the communication structure is selected as the new root apparatus.